

## STORMS AND WEATHER WARNINGS.

## WASHINGTON FORECAST DISTRICT.

*Storm warnings.*—Storm warnings were issued for portions of the Atlantic or the east Gulf coast on 13 days during the month, the most important being those of the 6th, 15th, 18-19th, and the 30th. In addition, small-craft warnings were issued on four days.

On the morning of the 6th an area of high pressure was over New England and a disturbance of considerable intensity was central over the lower Ohio Valley, moving northeastward with rapidly increasing intensity. At 9:30 a. m. northeast storm warnings were ordered for the Atlantic coast from the Virginia Capes northward and at 2 p. m. southwest warnings were displayed south of the Virginia Capes as far as Jacksonville, Fla. This storm became very severe by the time its center reached the southern New England coast and there were gales along the entire Atlantic seaboard from Jacksonville northward, several stations reporting velocities of 60 miles an hour or over, the highest, 68 miles an hour from the west, occurring at Cape Hatteras.

The next storm of marked intensity that reached the Atlantic coast was that of the 16th, warnings for which were displayed at 5 p. m. of the 15th. Southerly gales prevailed generally north of Cape Hatteras, and at both New York City and Sandy Hook, N. J., a maximum velocity of 76 miles an hour from the south occurred, which is especially high for southerly winds.

Again on the 19th there were west and northwest gales along the entire coast from Jacksonville, Fla., northward, in connection with a severe storm that was central over northern New York at 8 a. m. of that date and moving rapidly east-northeastward. The highest velocity reported was 72 miles an hour from the northwest at New York City, and many other stations experienced winds of 48 miles an hour or over. Warnings were issued well in advance for the entire area affected.

A slight disturbance which was over the eastern Gulf of Mexico on the morning of the 30th moved rapidly northeastward during the day with slowly increasing intensity and it was centered in the vicinity of Cape Hatteras at 8 p. m. During the night it became a storm of marked strength as it continued to move northeastward and it was quickly followed by a great area of high pressure and a cold wave from the Northwest. Northwest and north gales prevailed generally from Cape Hatteras northward, the highest velocity reported being 60 miles an hour from the north at Cape Henry.

*Cold-wave warnings.*—March was a month of frequent and marked temperature changes and cold-wave warnings were required on several dates after the middle of the month. On the morning of the 17th an area of high pressure with its crest over the upper Ohio Valley was moving east-northeastward. At the same time a disturbance of marked intensity was moving rapidly southeastward over the Rocky Mountain region and the Plain States, closely followed by an area of abnormally high pressure and a cold wave. The latter moved rapidly southeastward from Alaska over the Canadian Northwest. This type of pressure distribution was indicative of the steady advance of the northwestern area of high pressure and cold weather to the Atlantic and Gulf coasts, and, in the weekly forecast issued on Saturday the 17th, it was stated that decidedly colder weather would overspread the Eastern and Southern States Monday and Tuesday with frosts probable to the Gulf and south Atlantic coasts,

except in Southern Florida. At the same time cold-wave warnings were issued for Ohio, western New York and western Pennsylvania, and at 8 p. m. for Kentucky, western Tennessee and northern New York. The following day they were extended to cover the balance of the Washington Forecast District, except southern and central Florida. The cold wave overspread the lower Lake Region and the Ohio and lower Mississippi valleys during Sunday night, and by Tuesday morning the warnings were fully verified at every station in the district, except in the Florida Peninsula.

Another cold wave advanced rapidly eastward over the upper Ohio Valley and the middle Atlantic and north Atlantic States during the 28th, and the lowest temperatures of record so late in the season were reported from stations in New York, Pennsylvania, Maryland, and the District of Columbia. The temperature fell somewhat lower than expected so that cold wave warnings were not issued, except for a very limited portion of this area.

The next cold wave quickly overspread middle and northern sections east of the Rocky Mountains, and there were record breaking temperatures on March 31st at 31 stations east of the Mississippi River and from Tennessee and North Carolina northward, and at 35 stations within the same area on Easter Sunday, April 1. Warnings of this cold wave were issued on the 30th for the greater portion of the region affected.

*Frost warnings.*—Frost warnings were issued for portions of the southeastern States on 11 dates during the month, the most important being those of the 18th and 19th. Freezing temperature occurred to the Alabama and extreme northwest Florida coast on the morning of the 20th, but cloudiness prevented the formation of frost, while killing frost was reported from the interior of the east Gulf States and at all stations in the south Atlantic States north of Florida.

*Heavy snow warnings.*—Warnings of heavy snow were issued for western Pennsylvania and western New York and for the Atlantic States north of Virginia on the 6th, and heavy snowfall was reported from much of this area.—*Charles L. Mitchell.*

## CHICAGO FORECAST DISTRICT.

The month of March was a most active one in the Chicago Forecast District. One disturbance after another moved across the district in rapid succession, usually taking the route across the southern portion, and followed by high-pressure areas and low temperature. As a consequence the total precipitation was rather heavy over the eastern portions of the district, and the temperature was generally below the seasonal normal, except in portions of Montana. The deficiencies were most marked in the upper Mississippi Valley and western Lake Region, where the departures ranged from 3° to more than 10°.

The first storm put in its appearance in the Canadian Northwest on the morning of the 1st, and moved directly southeastward over the Great Lakes, with a secondary storm reaching far to the rear over the middle Rockies. The former steadily lost energy while the latter became, by the 3d, the principal storm and crossed the Great Lakes on the 4th, attended by shifting gales and followed by much colder weather. No severe cold followed this storm, however, and cold-wave warnings were issued only for a limited area in the Northwest. Livestock warnings were issued on the 2d for North Dakota and Wyoming, and on the 3d for Nebraska and Kansas, as well as Wyoming; also on the night of the 3d advices